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| 09/818,625 | 03/28/2001 | Shinichi Hara | 862.C2167 | 1693 |

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EXAMINER

ESPLIN, DAVID B

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| ART UNIT | PAPER NUMBER |
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2851

DATE MAILED: 08/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

09/818,625

HARA ET AL.

Examiner

Art Unit

D. Ben Esplin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-48 and 60-63 is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-24, 49, 52-59 and 64-71 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 50, 51 and 72-75 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the opening/closing door located on the closed vessel, and the vent hole that opens/closes freely must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are further objected to because FIG. 3 shows two components labeled as 111. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

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Claim Objections

Claim 74 is objected to because of the following informalities: Claim 74 is a duplicate of claim 72. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1, 2, 6, 9, 11, 13-24, 49, and 53-59 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,252,648 to Hase et al.

FIG. 1 of Hase shows an exposure apparatus including a chamber (barrel 2h) which incorporates an optical element (lenses 2a and 2b) and surrounds a predetermined region through which vacuum ultraviolet light from an excimer laser 1 travels, a closed vessel (casing 2g) that surrounds the chamber, and a pump (gas discharging device 9a) for reducing an internal pressure of the chamber. In the apparatus of Hase as the internal pressure of the chamber is reduced by the pump, via a gas discharging line 9b, the internal pressure of the closed vessel is also reduced since each of these compartments is connected to a main section of the gas discharging line 9b by separate branches of the line 9b. The separate branches of the line 9b allow the chamber and the closed vessel to communicate with each other, thereby acting as a vent hole. This vent hole

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may be opened/closed via the electromagnetic valve 9c. The outer housing of the chamber, in FIG. 1, is shown as having an upside down T support that is connected to the closed vessel. The bottom of this upside down T may be construed as a surface plate that supports the lens barrel portion of the chamber. The closed vessel shown also includes a transmission window (window 2e) supported movably with respect to the closed vessel (col. 3 lines 59-62). Once evacuation has been accomplished, an inert gas, such as helium or nitrogen (col. 4 lines 1-3), may be supplied to both the chamber and the closed vessel from an inert gas supply 8a by separate branches of an inert gas supplying line 8b. The points at which the branches of the lines 8b and 9b connect with the chamber and the closed vessel form gas supply ports and gas discharge ports.

Referring specifically to claims 49 and 53-59, the above stated structure and function of Hase would inherently lead to the method steps recited in these claims.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3-5, and 71 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,964,940 to Auvert et al.

FIG. 1 of Auvert shows an exposure apparatus including a chamber (reaction chamber 20) including an optical element (transparent window 56), a closed vessel (sealed enclosure 10) surrounding the chamber, and a pump (suction means 72) for reducing an internal pressure of the

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chamber. FIG. 1 also includes suction means 80 for reducing the internal pressure of the closed vessel as the internal pressure of the chamber is reduced. The apparatus of Auvert further has a displacement mechanism (means 64, 62, 60, and 58) for generating a displacement between the chamber and the closed vessel. A control means 66 is responsible for measuring the position of the chamber and, based on this measured position, controlling the displacement mechanism.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hase as applied to claims 1, 2, 6, 9, 11, 13-24, 49, and 53-59 above, and further in view of U.S. Patent No. 6,341,006 to Murayama et al.

Although Hase is silent concerning the composition of the transmission window, Murayama shows that the use of fluoride glass to form such a window was well known in the art (col. 22 lines 25-30). Therefore, it would have been obvious to form the transmission window of Hase from fluoride glass, as is taught in Murayama, as an art recognized embodiment.

Claims 12 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase as applied to claims 1, 2, 6, 9, 11, 13-24, 49, and 53-59 above, and further in view of U.S. Patent No. 6,295,121 to Nakamura.

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Hase does not include a door in the closed vessel. However, FIG. 2 Nakamura shows an exposure apparatus with doors 5C and 5D incorporated in a closed vessel (housing 101) in order to provide access to the components contained therein for maintenance purposes (col. 5 lines 25-33). Therefore, it would have been obvious to include a door in the closed vessel of Hase in order to permit easy access to the components inside for maintenance purposes, as is taught by Nakamura.

Referring specifically to claim 52, the above stated structure and function of Hase in view of Nakamura would inherently lead to the method steps recited in this claim.

Claims 64-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase as applied to claims 1, 2, 6, 9, 11, 13-24, 49, and 53-59 above, and further in view of U.S. Patent No. 6,385,497 to Ogushi et al.

Hase is silent concerning the placement of the apparatus in an automated factory. FIG. 1 of Ogushi shows a schematic view of a remote maintenance system for a semiconductor factory in which manufacturing apparatuses are connected by a local area network that is made accessible to an external network via a gateway. The apparatuses each are connected to a computer with a display and networking software that makes a database of maintenance information available to a user at a location other than the factory via the external network. In view of the teachings of Ogushi, it would have been obvious to place the exposure apparatus of Hase in an automated semiconductor device factory, as an art recognized use.

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Allowable Subject Matter

Claims 7, 8, 50, 51, and 72-75 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 25-48, and 60-63 are allowed.

The following is an examiner's statement of reasons for allowance:

Referring to claims 7 and 8, the structure of a moveable displacement adjusting member couple to a surface plate supporting a lens barrel, in conjunction with the other subject matter of these claims, is not found in the prior art.

In reference to claims 25-48, 50, 51, 60-63, and 72-75, while Auvert, as applied above, does teach many of the elements of these claims, as well as providing for different atmospheric conditions between the closed vessel and the chamber, the chamber of Auvert is supplied with reactive, not inert gas, as is specified in these claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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U.S. Patent No. 6,333,775 to Haney et al. discloses an exposure apparatus that includes chambers with different atmospheric conditions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Ben Esplin whose telephone number is (703) 305-4022. The examiner can normally be reached on Mon.-Fri. (8am-4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on (703) 308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DBE
DBE
August 23, 2002


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